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front, and a hole  $x$  at the back to receive the spring catch  $y$  in the back rail, as shown fig. 14; beneath the seat are two pieces of webbing  $w w$  to limit the expansion of the two frames, and thereby to cause the spring catch to fall into its hole without any trouble: fig. 15 is a side view of the chair when folded.

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## No. VI.

### APPARATUS TO ASSIST A WEAK KNEE JOINT.

*The LARGE SILVER MEDAL was this session presented to W. BROCKEDON, Esq. Caroline-street, Bedford-square, for a Mechanical Apparatus to assist a weak Knee-joint; a model of which has been placed in the Society's repository.*

A SON of Archdeacon Froude of Modbury, a friend of Mr. Brockedon, had from his childhood been afflicted with lameness, arising from a withered right thigh and leg. The limb is about four inches shorter than the other, and possesses no muscular power, being almost pendulous from the hip joint. He was accustomed to walk with great difficulty, in a bent, almost crouching position, with a stick in the left hand, and the right hand placed over the knee in order to prevent it from giving way by the weight of the body. The father requested Mr. Brockedon to endeavour to contrive some apparatus for the relief of the youth; the request was complied with, and the result was the instru-

ment about to be described, the efficacy of which has been ascertained by a trial of above two years.

A circular steel spring *jj*, figs. 5, 6, 7, plate VIII. goes round the waist, to the right hand side of which is fixed a slender iron bar *lm*, passing along the outside of the limb as low as the ankle; the end turns up a little from beneath the pantaloons, and terminates in a socket or ferrule *s*, capable of receiving the end of a common walking-stick. The iron has a joint *k* parallel to that of the withered thigh, and another joint *n* parallel to the knee joint. To that part of the iron which answers to the thigh is attached a broad semicircular spring *o*, which applies itself to the front of the middle of the withered thigh, making on it the same kind of pressure that the patient was before obliged to make by means of his hand. A sliding piece *p* slips over and secures the joint *n*, as shown in fig. 5, and is prevented from coming too low down by the stop *g*: by means of the stud *r* the piece may be drawn up as far as *o*, in which position the iron will bend at the joint *n*, and thus allow the patient to sit down with ease. When he wishes to walk, he places the end of a stick, held in the right-hand, into the socket *s*, fig. 5, and by the leverage thus obtained causes any degree of pressure that he pleases on the middle of the thigh, by means of the spring *o*. He is thus enabled to walk in a much more upright posture than before, can advance at the rate of two miles or more in an hour, and can persist in this exercise for some hours without intermission.